FAST RFID at the Border

DOD RFID SUMMIT

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Border Inspection Philosophy

- Separate the known low risk from the unknown
- Concentrate inspection efforts on the unknown
  - Develop programs for low risk border crossers
  - Provide incentives to enroll (dedicated lanes, shorter lines, faster processing)
  - Perform extensive background checks
  - Accept only those deemed low risk

Predecessor Systems 1996-1998

- NATAP (North America Trade Automation Prototype) – Treasury Dept
  - Driver background checks
  - Electronic document submission for ATS
  - Modified ASTM Draft 6 windshield transponders
  - 915 MHZ (>50 ft. read range)
  - Advanced, decision and exit readers
  - Deployed at crossings in U.S., Canada, and Mexico

Predecessor Systems 1998-2002

- NCAP (National Customs Automation Program)
  - Simpler than NATAP
  - One reader at primary inspection booth
  - Used EZ-Pass toll windshield or bumper transponder
  - 915 MHz (~18 ft. read range)
  - Deployed at Ambassador Bridge in Detroit
  - Used primarily by Big 3 auto makers and suppliers

Immediately After September 11, 2001

- Border security tightens
  - More and lengthy inspections
  - Trucks in line for up to seven hours in Detroit
  - Commerce slows
  - Heat applied from all quarters
- Solution needed to get the trucks moving again

FAST Program Announced Sept. 2002

- System requirements
  - Modeled after NCAP
  - Automatic identification of both truck and driver(s)
  - Rapid deployment to busiest border crossings
  - Affordable, reliable, and maintainable
- To gain benefit of FAST (low risk)
  - Driver(s) must be accepted into FAST
  - Shipper must be C-TPAT compliant
  - Carrier must be C-TPAT compliant

FAST RFID Design Chosen

- Windshield sticker transponder
  - Inexpensive, but readable at 18 ft.
  - Business card size and paper thin
- Driver ID card
  - Same technology as windshield sticker transponder
  - Credit card size
- Two antennas per lane
  - Primary antenna before the booth while truck approaches
  - Secondary (2nd chance) antenna while stopped at booth
  - Antennas aimed and attenuated to prevent cross-lane reads
- Single reader per lane
  - Multiplexing two antennas
  - Interfaced to CBP booth computer via Ethernet (TCP/IP)
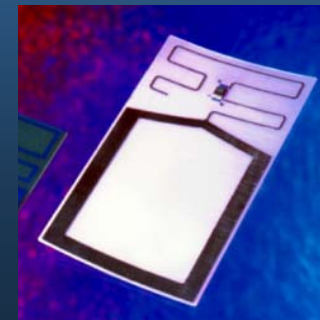 - Reads windshield transponder and 3 driver ID cards

Windshield Sticker Transponder

- Features:
  - Low cost
  - High performance
  - Custom color printing and laser etching
  - Read/write capable
  - Small size and paper thin
- eGo® technology, developed by TransCore
- ISO 18000-6b std. protocol
- Beam powered (no battery)
- Should last as long as the windshield
- Range up to 18 ft.
- Operated in 902-928 MHz range
- Transponder memory of 128 bytes (1024 bits)

RF Enabled Driver ID Card

- Same card as used in NEXUS program
  - Same technology as windshield sticker transponders
  - Personalized ID cards, printed using common dye sublimation printers
  - Read range is 4 in. to 15 ft. depending on the reader and antenna
  - Hold away from body for maximum performance
  - People presenting badges inside vehicles can be identified at stopped/slow speed applications

Antennas at Border
Primary Inspection Booth

FAST Deployments

- Phase I (November 2002 – January 2003)
  - 27 lanes at the 6 busiest northern border crossings
  - Completed in 3 months
- Phase II
  - 53 southern border lanes
  - Added 18 more northern border lanes
- Phase III
  - Increased deployed primary lanes to 133 (North and South)
  - Deployed at 24 compound exit lanes

Uses of RFID Transponders at the Border

- FAST
  - Uses windshield sticker tag and ID card to identify vehicle and driver(s)

- User fee program
  - Uses windshield sticker to know if annual fee has been paid
  - Annual issuance not needed
  - Account credited annually

- Compound security
  - Matching the driver to the truck at primary and exit
  - Confirming that secondary inspection referrals passed

- Over 500,000 transponders issued to trucks and drivers

Summary

- CBP has equipped nearly every truck at the border with RFID

- All major commercial border crossing have RFID read capability (133 primary inspection lanes)
  - 61 lanes with Canada
  - 72 lanes with Mexico

- Applications using RFID continue to expand, making the border safer, faster, and more convenient

Thank You

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